

Ground Crew Coordination

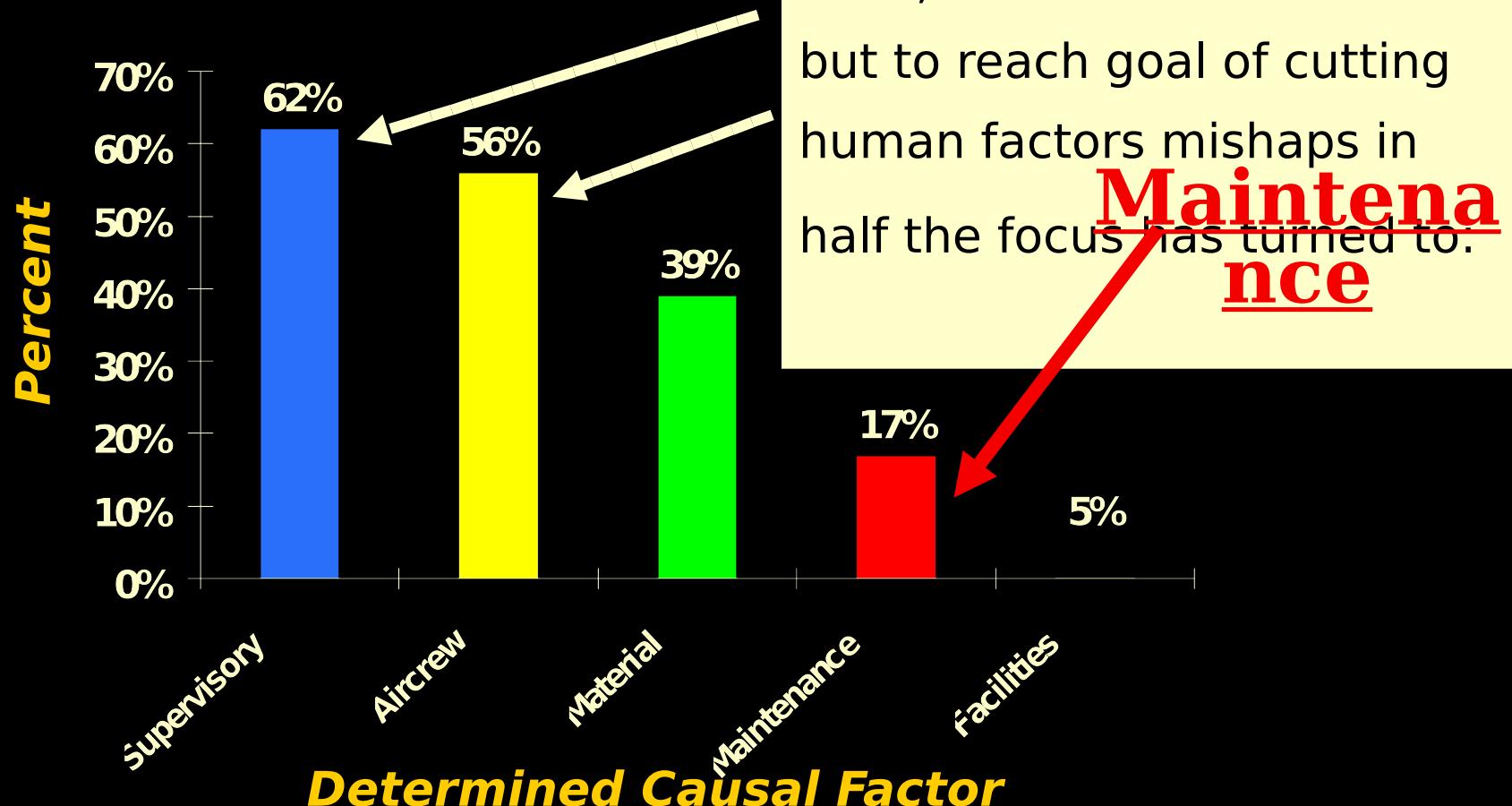


LCDR Deborah White
Human Factor Analyst
Naval Safety Center

Mishap Data Analysis

Focus:

Naval Aviation Class A EM Causal Factors



DEFENCE

BREACHES

Serviceable AME



Incorrect screw fitted causing restriction

Safety Indicator



False lock indication - Actuator out of adjustment

Redesigned bellcrank



Bellcrank not procured by RAAF

Accurate Procedures



Procedures deficient or ambiguous

Training



Deficient training/ inadequate OJE

Authorisation



Tradesman not authorised to complete task

Culture - Adherence to policy/ procedure



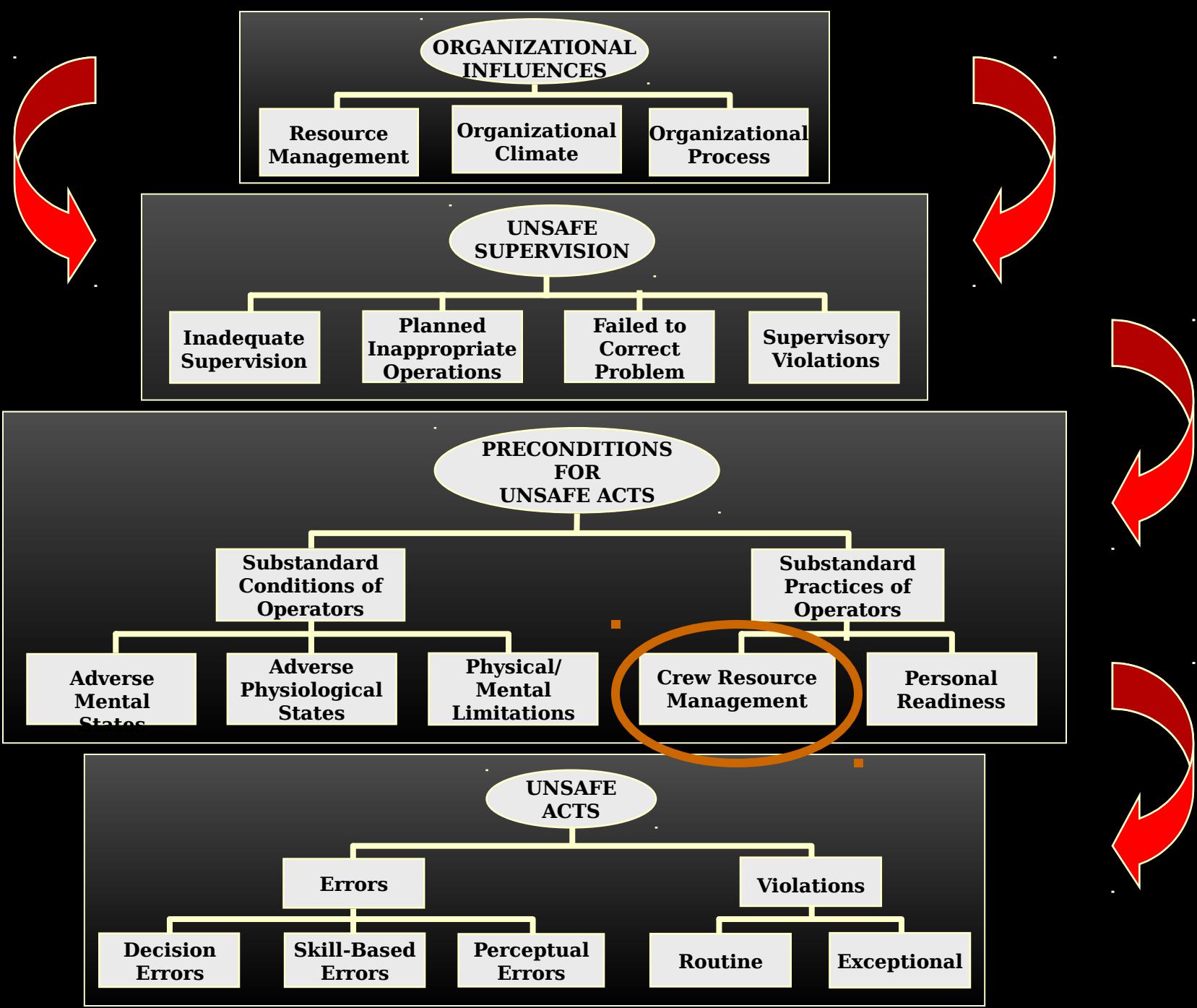
Violation of policy and procedure

Supervision & Inspection



Inadequate supervision and inspection provided

INCIDENT



Groundcrew Coordination (GCC)



**“Managing Risk and
Maximizing Effectiveness”**

Enabling Objectives

- **Gain an understanding of what GCC is and why it is important.**
- **Discuss the seven behavioral skills associated with GCC and define them accurately.**
- **Given an aircraft ground mishap, be able to evaluate its causes, and determine how GCC could be used to avoid them in the future.**

We are not alone!

Airlines Worldwide:

Maintenance problems are the second greatest contributor to onboard fatalities, following controlled flight into terrain (CFIT).

History of GCC

Continental Airlines initiated a Crew Coordination Concepts (CCC) program “*to equip all maintenance personnel with the skill to use all resources to improve safety and efficiency.*” The training covers organizational routines, assertive behavior, leadership styles, stress management, decision-making, and interpersonal skills. The results after the first three years of CCC were remarkable: 2000 employees received training (2/3 workforce)

- Maintenance ground damage costs cut by 66%
- Dramatically reduced upward trend in injuries

GCC Definition

What is Groundcrew Coordination?

A process of coordinated action among groundcrew personnel which enable them to interact effectively while performing mission tasks and handling emergencies.

LEARNING TO ACT AS A

GCC Importance

Why is GCC Training important?

Good groundcrew coordination can increase mission effectiveness by minimizing crew-preventable errors, maximizing crew resources, and optimizing risk management.

GCC Naval Aviation Importance

Failure to coordinate was found in:

- **Almost 70% of All Aircraft Ground Mishaps!**
- **Over 50% of Personal Injury Maintenance Mishaps!**
- **Almost 50% of All Class A /B Mishaps!**

Causes of Human Factor Error

“Dupont’s Dirty Dozen”

- 1) Lack of Communication Resources
- 2) Complacency
- 3) Lack of Knowledge Assertiveness
- 4) Distraction
- 5) Lack of Teamwork Awareness
- 7) Lack of
- 8) Pressure
- 9) Lack of
- 10) Stress
- 11) Lack of

GCC Seven Behavioral Skills

- ✓ **Decision Making**
- ✓ **Assertiveness**
- ✓ **Mission Analysis**
- ✓ **Communication**
- ✓ **Leadership**
- ✓ **Adaptability/Flexibility**
- ✓ **Situational Awareness**

Decision Making



GROUNDCREW HUMAN FACTORS KNOWLEDGE

ARE YOUR APs UP TO DATE?



IF THE AIRCRAFT
DOESN'T LOOK LIKE
THE ONE IN THE AP..
PUT IN AN F765.

BEHAVIORAL SKILL:

Decision Making

Importance

Decision Making failures occur in:

- **11 % of Aircraft Ground Mishaps!**
- **7 % of Personal Injury Mishaps!**

**“No...I won’t need
goggles on this job.”**



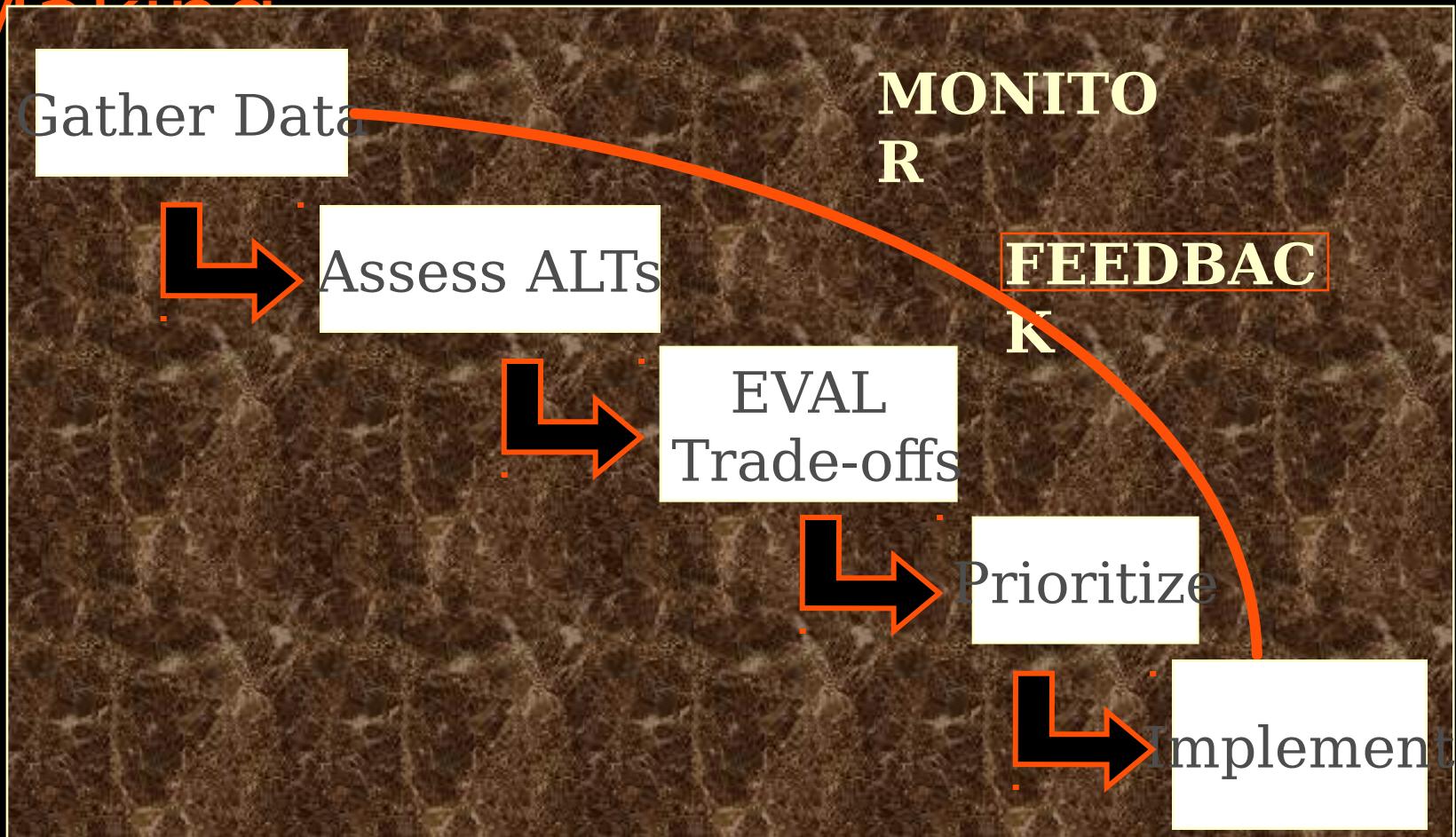
Decision Making- *the ability to use logical and sound judgment based on available information*

Barriers:

- Time demands/constraints
- Inaccurate/Vague Information
- Pressure to Perform
- Rank Differences/Gradient



BEHAVIORAL SKILL: Decision Making



BEHAVIORAL SKILL:

Decision Making

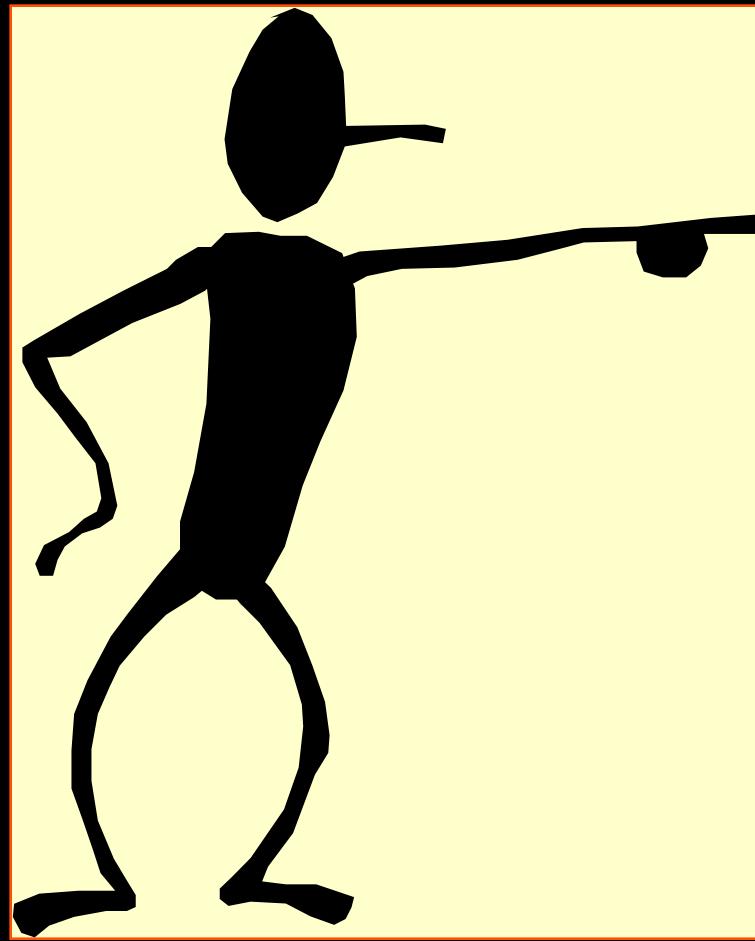
Factors Facilitating Decision

Making

Employing Teamwork

- Allocating Ample Time
- Anticipating the Consequences
- Disseminating Decisions and Rationale
- Evaluating the Decision

Assertiveness



GROUNDCREW HUMAN FACTORS ASSERTIVENESS

IF YOU'VE
GOT A
PROBLEM...



COMMUNICATE IT!

BEHAVIORAL SKILL: Assertiveness Importance

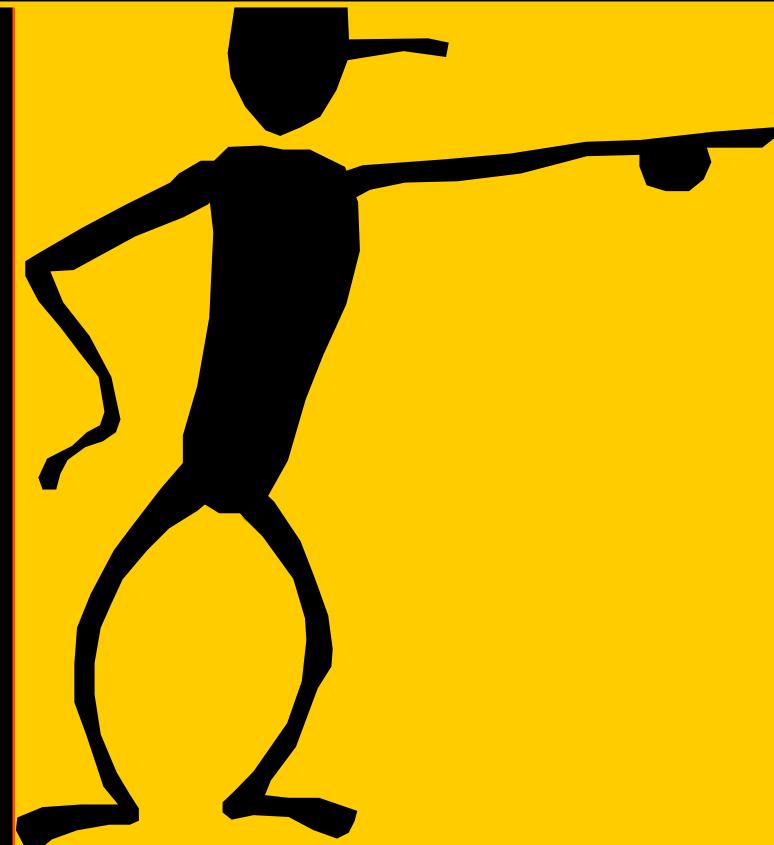
**Assertiveness failures are found in
almost**

- **24% of Aviation Ground Mishaps**
- **10 % of Personal Injury Mishaps**

Assertiveness- *willingness to actively participate and ability to state and maintain individual position.*

Barriers:

- ❖ Rank differences
- ❖ Position Authority
- ❖ Inexperienced/New
- ❖ Coercion
- ❖ Lack of Confidence



BEHAVIORAL SKILL:

Assertiveness

“Rule of Thumb”

If a disagreement exists, take the most conservative action until more information is available.

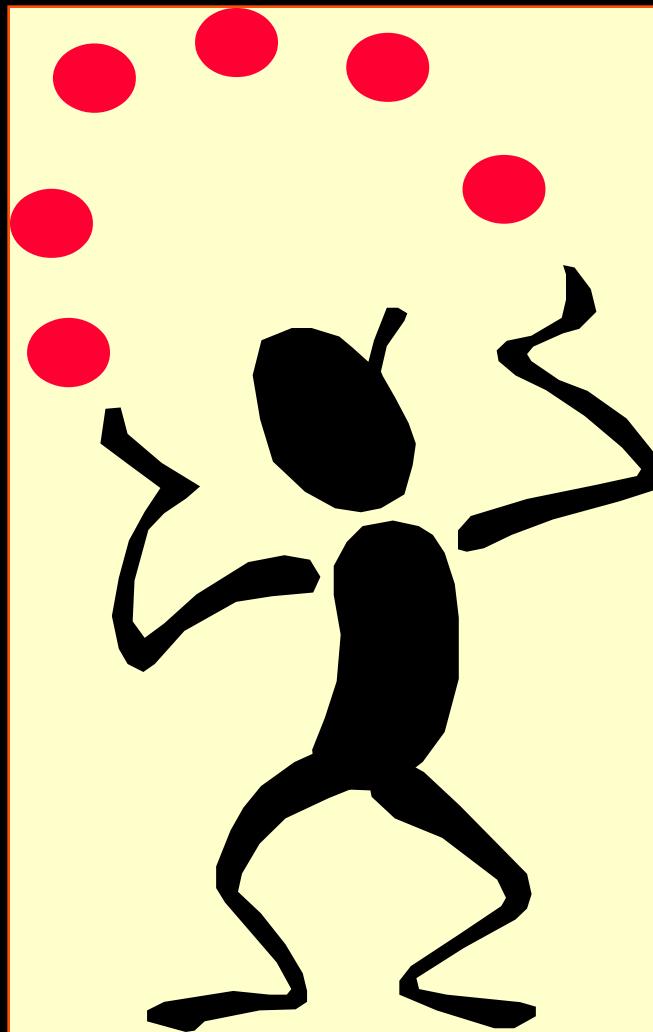
BEHAVIORAL SKILL: Assertiveness Situations Requiring Assertiveness

- **Pre-Mission Brief**
- **Mission Execution**
- **Post-Mission Brief**

Assertive Tool Control?



Mission Analysis



GROUNDCREW HUMAN FACTORS

COMPLACENCY

CRUNCH

I'm sure
that wasn't there
when I came through
here a minute ago!



BEHAVIORAL SKILL: Mission Analysis Importance

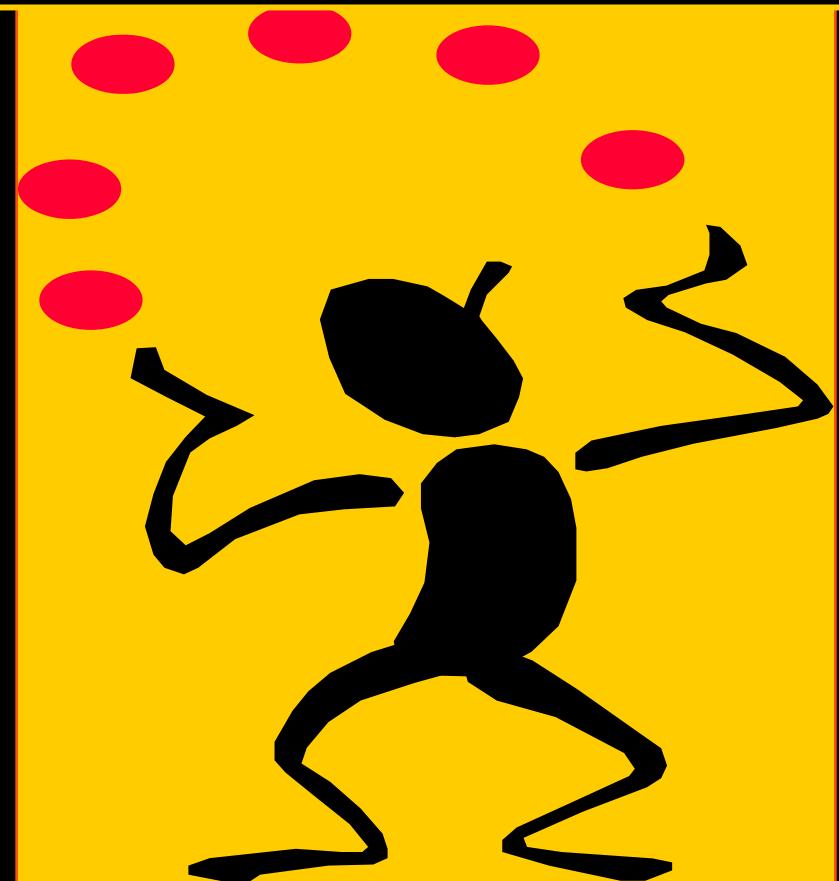
**Mission Analysis failures are
found in:**

- **52% of Aircraft Ground Mishaps!**
- **47% of Personal Injury Mishaps!**

Mission Analysis- *ability to allocate, coordinate, and monitor maintainer, equipment, & facility resources.*

Barriers:

- Time pressure
- OPs TEMPO
- Coercion



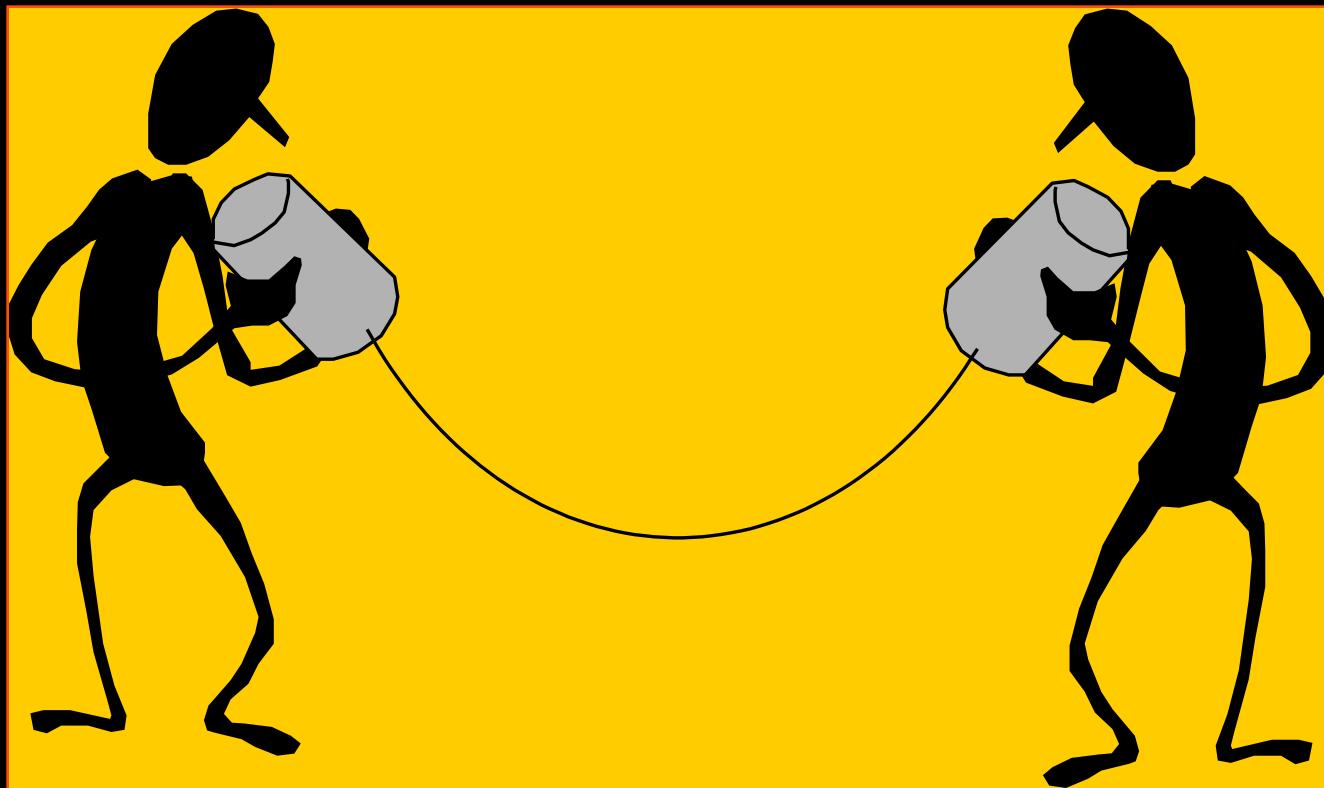
BEHAVIORAL SKILL:

Mission Analysis

Encompasses

- **Organization/Planning for What Will Occur During a Task**
- **Monitoring the Current Situation**
- **Reviewing and Providing Feedback on What has Occurred**

Communication



GROUNDCREW HUMAN FACTORS COMMUNICATION DON'T ASSUME,



BEHAVIORAL SKILL:

Communication

Importance

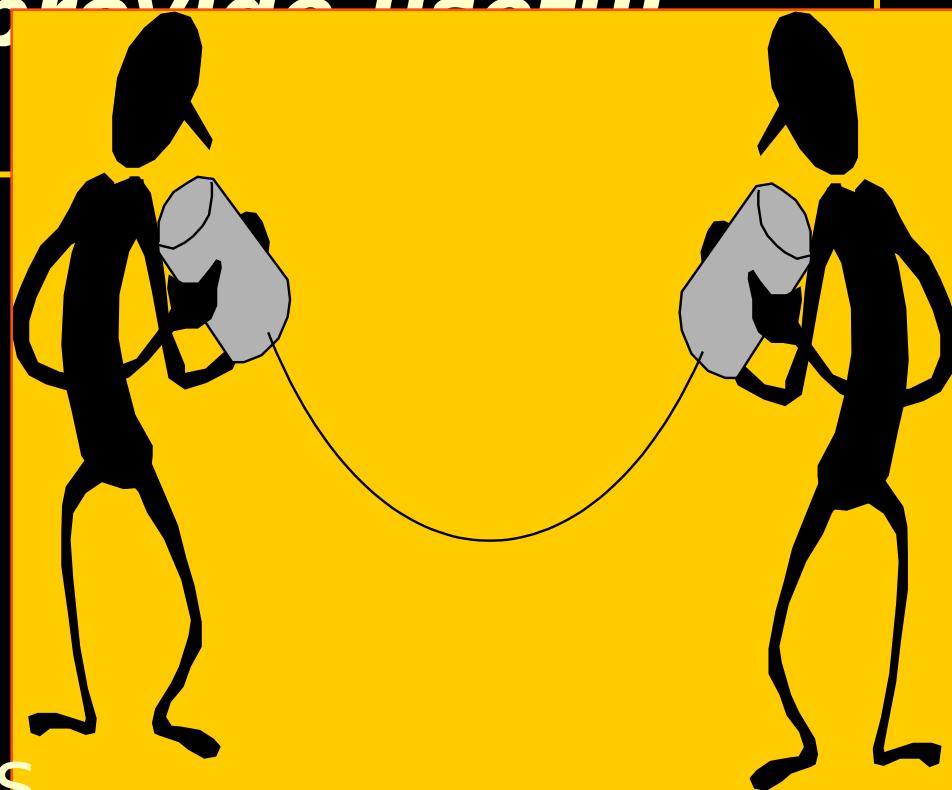
Communication failures occur in:

- **49% of Aircraft Ground Mishaps!**
- **33% of Personal Injury Mishaps!**

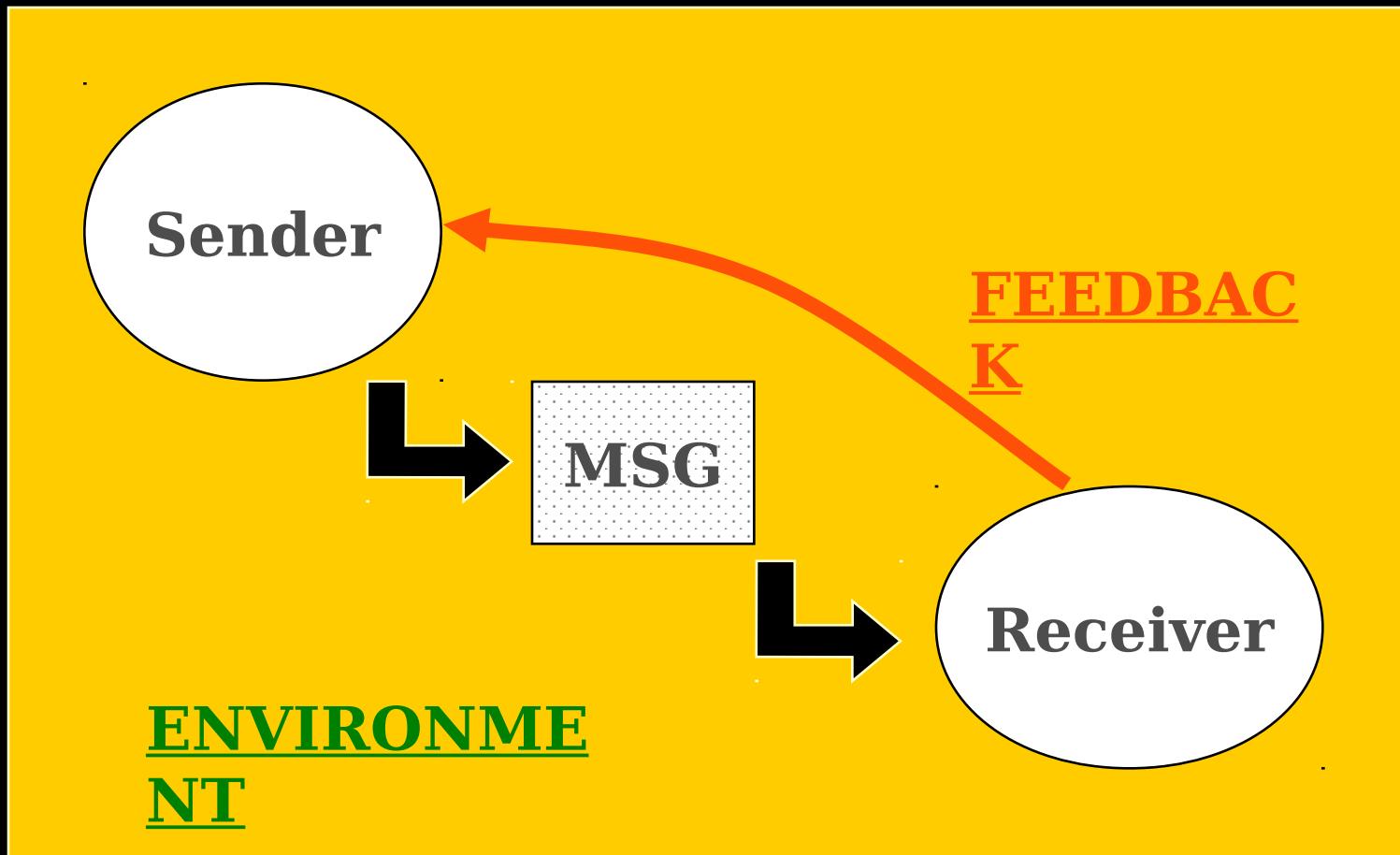
Communication- *ability to clearly/ accurately send information and provide useful feedback.*

Barriers:

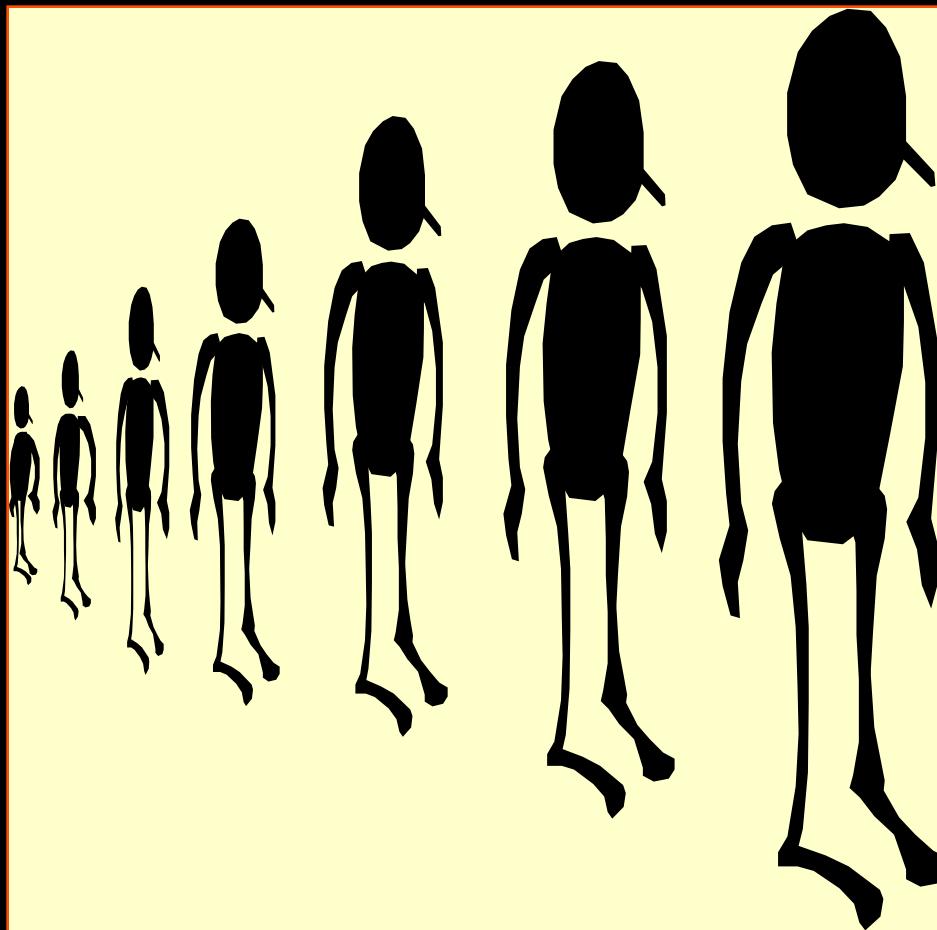
- Passive Listening
- No or Poor Feedback
- Non-Standard Terms
- Inappropriate Methods



BASIC COMMUNICATIONS MODEL



Leadership



GROUNDCREW HUMAN FACTORS

T
E
A
M
W
O
R
K



BEHAVIORAL SKILL:

Leadership Importance

Poor Leadership was found in:

- **17% of Aircraft Ground Mishaps!**
- **31% of Personal Injury Mishaps!**

Leadership- *ability to direct/coordinate activities of others and to stimulate them to work as a team.*

Barriers:

- Rigidity
- Inexperience
- Pressure
- Micro-management
- Poor Interpersonal Skills
- New/Unusual Situations



BEHAVIORAL SKILL:

Leadership

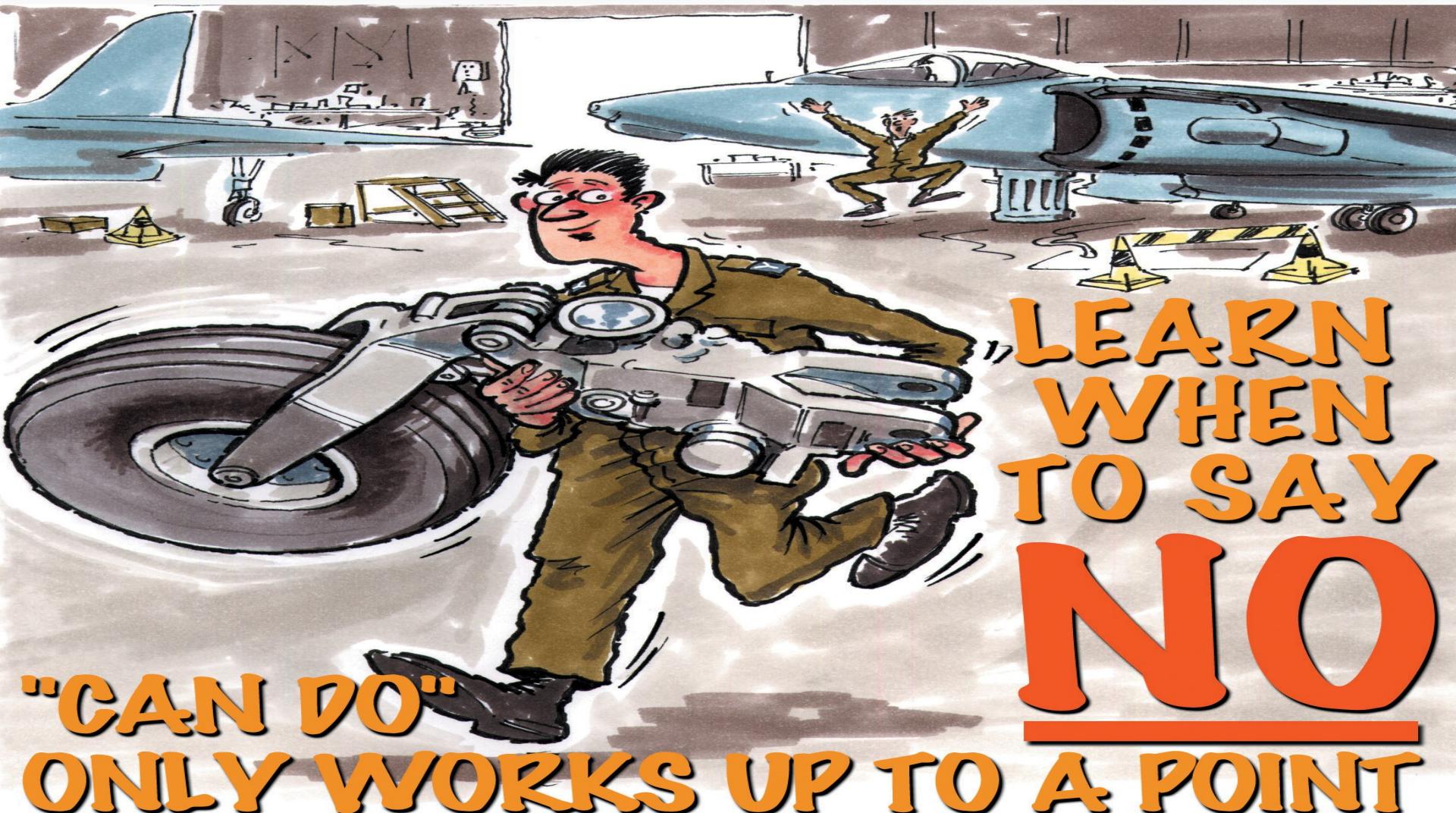
- **Designated - Leadership by authority, position, rank, or title**
 - formal/permanent
- **Functional - Leadership by knowledge or experience**
 - informal/temporary

Adaptability/Flexibility



GROUND CREW HUMAN FACTORS

RESOURCES NOT ENOUGH SPARES...



LEARN
WHEN
TO SAY
NO

"CAN DO"
ONLY WORKS UP TO A POINT

BEHAVIORAL SKILL: Adaptability/Flexibility Importance

Adaptability/Flexibility failures occur in

- **8 % of Aircraft Ground Mishaps!**
- **5 % of Personal Injury Mishaps!**

Adaptability/Flexibility- *ability to alter courses of action to meet situational demands.*

Barriers:

- Confusion/Stress
- Peer Pressure
- Groupthink Mindset
- Mission Schedule
- Personal Rigidity
- New/Unusual Situations



ell, at least they're flexib



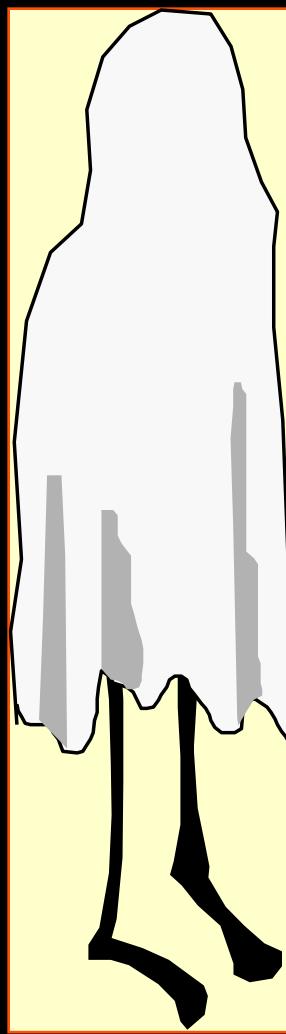
BEHAVIORAL SKILL:

Adaptability/Flexibility

Example Behaviors

- Alter behavior to meet situational demands
- Be open and receptive to other ideas
- Help others when necessary
- Employ constructive behavior under pressure
- Adapt to internal/external environment changes

Situational Awareness



GROUNDCREW HUMAN FACTORS
AWA'RENESS
CONCENTRATE....



..ON THE
BIG
PICTURE

**C
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D
!**



BEHAVIORAL SKILL: Situational Awareness Importance

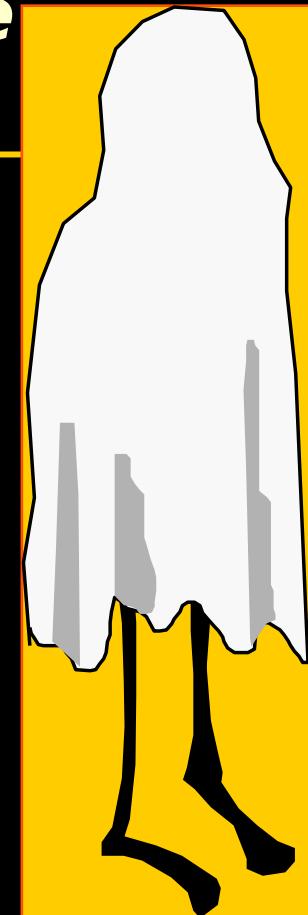
Situational Awareness failures were found in:

- **51% of Aviation Ground Mishaps!**
- **68% of Personal Injury Mishaps!**

Situational Awareness- *ability to maintain awareness of what is happening around as well as the primary task.*

Barriers:

- Lack of Communication
- Fatigue and/or Stress
- Task Over/Under-load
- “Groupthink” Mindset
- “Press-on” Mentality
- Degraded Conditions



BEHAVIORAL SKILL:

Situational Awareness

Encompasses the Ability to:

- **Identify sources of hazards/problems**
- **Extract/interpret essential information**
- **Maintain an accurate perception of your environment**
- **Detect situations requiring action**

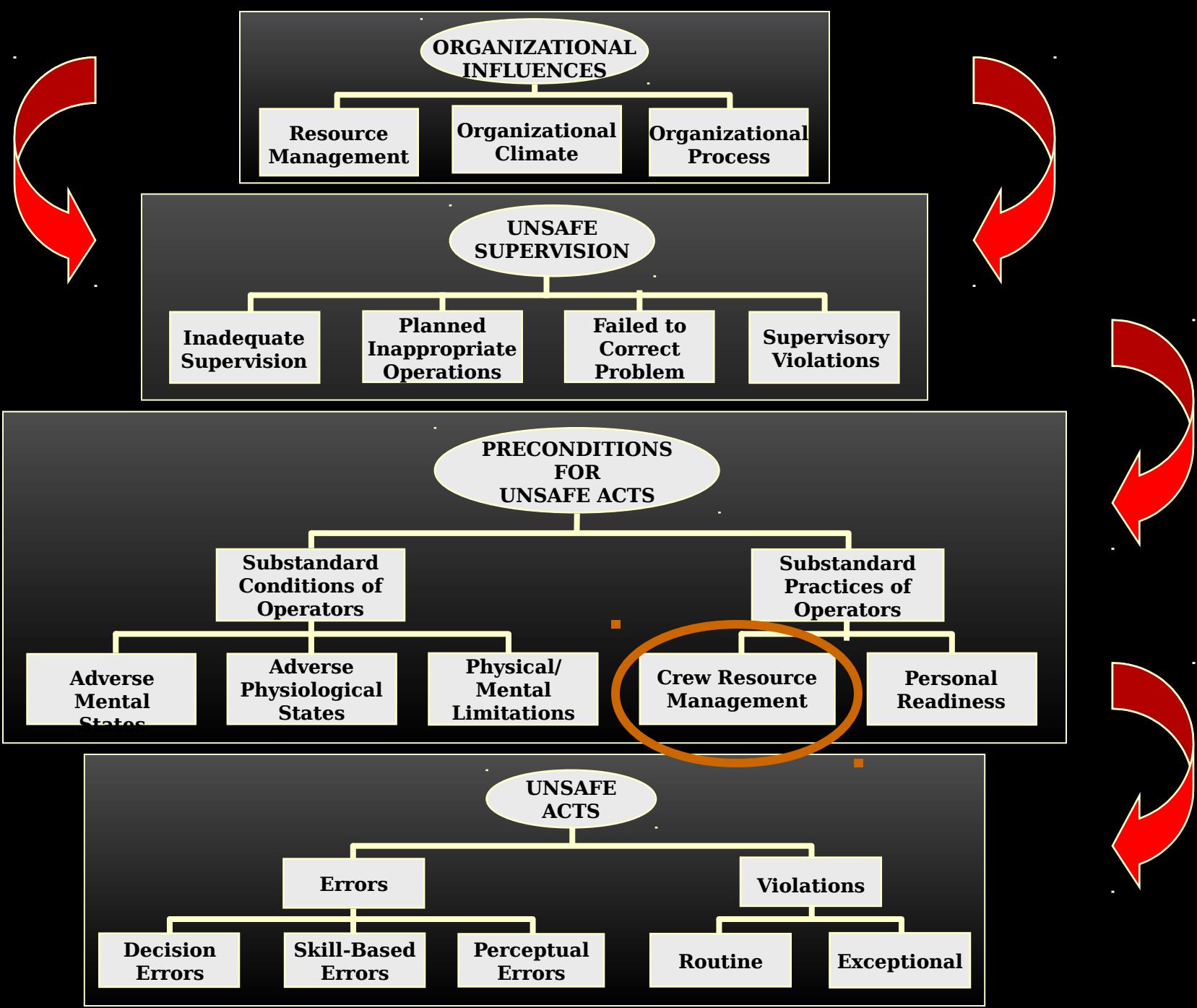
BEHAVIORAL SKILL: Situational Awareness Remedies

- **Actively question/evaluate**
- **Use assertive behavior when necessary**
- **Analyze/monitor situation continuously**
- **Update and revise mission profiles**

Case Scenario

DAMCLAS

ADCRITIC.COM



Summary

- ✓ Beware of the Dirty Dozen!
- ✓ Remember Perception = Reality!!
- ✓ Practice/Preach D-A-M-C-L-A-S!!!



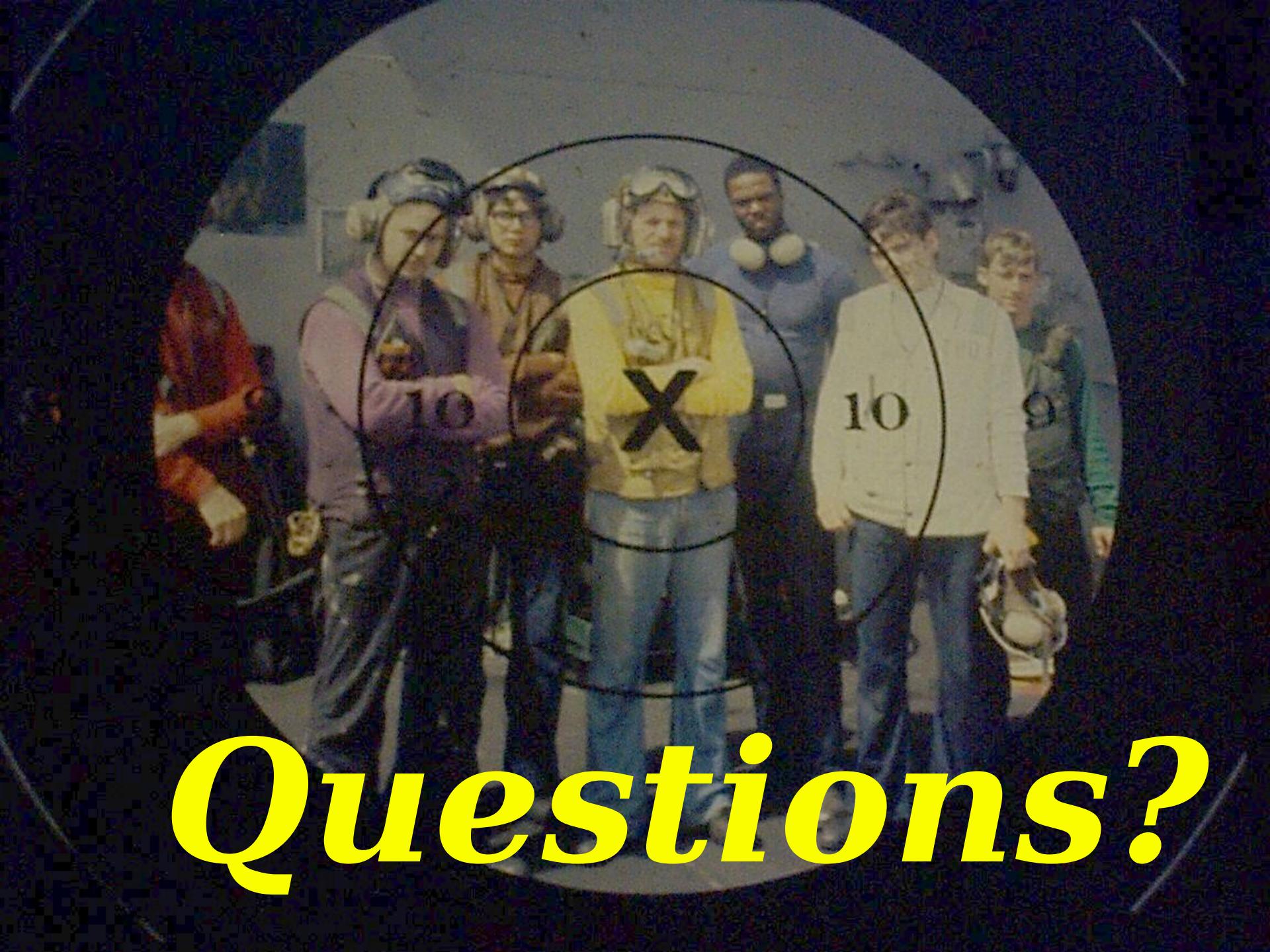
GROUNDCREW - AN EXTENSION OF CRM

Photo courtesy of CPE - Special Projects

Joining together is a beginning; Keeping together is progress; Working together is success.

444-3520 x7231 or (757) 444-3520 x7231
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A photograph of a group of people standing in a tunnel. In the center, a large yellow circle contains a black 'X'. To the left, a person in a purple vest has '10' on their back. To the right, a person in a grey vest has '10' on their back. The group is diverse in age and attire, including a man in a flight suit and goggles. The tunnel walls are made of concrete.

Questions?